

Gregory A. Eschenauer, Pharm.D.

Contact Information: College of Pharmacy, University of Michigan
428 Church Street
Ann Arbor, MI 48109
Office Phone: (734) 936-8226
Email: gregorye@med.umich.edu

Education

1998-2004	Doctor of Pharmacy Cum Laude, Professional Pharmacy with High Honors Butler University, Indianapolis, Indiana
2004-2005	Pharmacy Practice Residency University of Michigan Health System, Ann Arbor, Michigan
2005-2006	Infectious Diseases Specialty Residency University of Michigan Health System, Ann Arbor, Michigan

Licensure and Certification

2004- present	Michigan Pharmacist
2009- 2014	Pennsylvania Pharmacist
2006- 2009	New York Pharmacist
2014- 2021	Added Qualifications in Infectious Diseases Pharmacotherapy
2008- 2021	Board Certified Pharmaceutical Specialist

Employment

Current

2017- present	Clinical Associate Professor (20% appointment: Teaching 10%/Scholarship 10%) University of Michigan College of Pharmacy, Ann Arbor, Michigan
2013- present	Clinical Specialist, Infectious Diseases (80% appointment) Michigan Medicine, Ann Arbor, Michigan
2018- present	Clinical Consultant, Infectious Diseases Wolters Kluwer, Clinical Drug Information

Past

2013- 2017	Clinical Assistant Professor (20% appointment: Teaching 10%/Scholarship 10%) University of Michigan College of Pharmacy, Ann Arbor, Michigan
2009- 2013	Clinical Pharmacist, Infectious Diseases University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania

2012- 2013	Adjunct Assistant Professor University of Pittsburgh College of Medicine, Pittsburgh, Pennsylvania
2009- 2013	Adjunct Instructor in Pharmacy and Therapeutics University of Pittsburgh School of Pharmacy, Pittsburgh, Pennsylvania
2006- 2009	Infectious Diseases Clinical Manager New York Presbyterian Hospital, New York City, New York

Selected Honors and Awards

2023	Department of Clinical Pharmacy's Faculty Preceptor of the Year award
2021	Michigan Society of Health-System Pharmacists (MSHP) Professional Practice Award
2019- 2022	Michigan Medicine 'Making a Difference' Award 3/13/2019, 4/16/2019, 12/7/2020, 7/8/2022, 4/10/2024
2017	Antimicrobial Stewardship Centers of Excellence designation by the Infectious Diseases Society of America (Awarded to Michigan Medicine Antimicrobial Stewardship Program; Inaugural year of award)
2016	Kristen L. McGlone Research Award (Awarded to P4 Hanna Welch for our project "Effect of an Antimicrobial Stewardship Intervention on Outcomes for Patients with Clostridium difficile Infection.")
2015	Michigan Society of Health-System Pharmacists (MSHP) Professional Practice Award (Awarded to University of Michigan Health System Antimicrobial Stewardship Team)
2015	Phi Delta Chi Student Appreciation, University of Michigan College of Pharmacy, P3 class
2004	Outstanding Research Award, Butler University
2002	Rho Chi, College of Pharmacy, Butler University
2002	Pharmaceutics Award, Butler University

Scholarship

Peer Reviewed Publications

1. Theodore D, Henneman A, Loo A, Shields R, **Eschenauer G**, Sobieszczyk M, Kubin C. Initial Micafungin Treatment Does Not Improve Outcomes Compared to Fluconazole Treatment in Immunocompromised and Critically Ill Patients with Candidemia. J Antimicrob Chemother 2024 (accepted, in press).

2. Ravikumar R, Arora NS, Hanson R, Barhitte L, Nagel J, Aitken SL, Spranger E, Bashaw L, Gandhi T, Marshall VD, **Eschenauer GA**. A novel two-step process for the management of inpatient beta-lactam allergy labels. *Ann Allergy Asthma Immunol* 2024;132:525-531.
3. **Eschenauer GA**. Antifungal Therapies for *Aspergillus* spp.: Present and Future. *Semin Respir Crit Care Med* 2024;45:61-68.
4. Pogue JM, Lauring AS, Gandhi TN, Marshall VD, **Eschenauer GA**, Nagel JL, Baang JH, Zhou S, Valesano AL, Petty LA. Monoclonal antibodies for early treatment of Covid-19 in a world of evolving SARS CoV-2 mutations and variants. *Open Forum Infect Dis* 2021;8(7):ofab268.
5. Somers EC, **Eschenauer GA** (co first author), Troost JP, Golob JL, Gandhi TN, Wang L, Zhou N, Petty LA, Baang JH, Dillman NO, Frame D, Gregg KS, Kaul DR, Nagel J, Patel TS, Zhou S, Lauring AS, Hanauer DA, Martin E, Sharma P, Fung CM, Pogue JM. Tocilizumab for treatment of mechanically ventilated patients with COVID-19. *Clin Infect Dis* 2021;73(2):e445-e454.
6. Klatt ME, **Eschenauer GA**. Review of Pharmacologic Considerations in the Use of Azole Antifungals in Lung Transplant Recipients. *J Fungi* 2021;7:76.
7. Tran N, Mills JP, Zimmerman C, Gandhi TN, Tribble AC, Petty LA, Nagel J, Brancaccio A, Scappaticci G, Patel T, Dillman NO, Regal R, Klein KC, Washer L, Marshall VD, Sweeney J, Rao K, **Eschenauer GA**. Incorporating Preauthorization into Antimicrobial Stewardship Pharmacist Workflow Reduces *Clostridioides difficile* and Gastrointestinal Panel Testing. *Infect Control Hosp Epidemiol* 2020;41:1136- 1141.
8. **Eschenauer GA**, Xiao L, Waites KB, Crabb DM, Ratliff AE, Gandhi TN, Riddell J IV, Kaul DR. Macrolide-resistant *Mycoplasma pneumoniae* pneumonia in transplantation: increasingly typical? *Transplant Infect Dis* 2020;22:e13318.
9. Lew AK, Crass RL, **Eschenauer G**. Evolution of Equations for Estimating Renal Function and Their Application to the Dosing of New Antimicrobials. *Ann Pharmacother* 2020;54:496- 503.
10. Zimmerman C, Barwig K, **Eschenauer GA**. Impact of a Medication Administration Record Warning on Inappropriate Co-administration of Fluoroquinolone Antibiotics with Cation-Containing Medications. *Am J Health Syst Pharm* 2020;77:1827- 1829.
11. Petty LA, Vaughn VM, Flanders SA, Malani AN, Conlon A, Kaye KS, Thyagarajan R, Osterholzer D, Nielsen D, **Eschenauer GA**, Bloemers S, McLaughlin E, Gandhi TN. Risk Factors and Outcomes Associated with Treatment of Asymptomatic Bacteriuria in Hospitalized Patients: A Multi-Hospital Cohort Study. *JAMA Intern Med* 2019;179:1519- 1527.
12. Patel T, Carver P, **Eschenauer GA**. Are In Vitro Susceptibilities to Azole Antifungals Predictive of Clinical Outcome in the Treatment of Candidemia?" *J Clin Microbiol* 2018;56:e01072-18.
13. **Eschenauer G**, Carver P, Patel T, Lin SW, Klinker K, Pai M, Lam S. Survival in Patients with *Candida glabrata* Bloodstream Infections is Associated with Fluconazole Dose. *Antimicrob Agents Chemother* 2018;62:e02566-17.

14. Foolad F, Huang A, Nguyen C, Mack M, Colyer L, Lim M, Grieger J, Li J, Revolinski S, Gandhi T, Wainaina N, **Eschenauer G**, Patel T, Marshall V, Nagel JL. A Multicenter Stewardship Initiative to Decrease Excessive Duration of Antibiotic Therapy for the Treatment of Community-Acquired Pneumonia. *J Antimicrob Chemother* 2018;73:1402–1407.
15. Freeman T, **Eschenauer G**, Patel T, Gandhi T, Petty L, Chenoweth C, Santarossa M, Nagel J. Evaluating the need for Antibiotic Stewardship Prospective Audit and Feedback on Weekends. *Infect Control Hosp Epidemiol* 2017;38:1262- 1263.
16. Carver PL, **Eschenauer GA**, Stuckey L, Patel T. Antifungal Prophylaxis in Lung Transplant Recipients. *Transplantation* 2016;100:1815-1826.
17. Foolad F, Nagel J, **Eschenauer G**, Patel T, Nguyen C. Disease-Based Antimicrobial Stewardship: A Review of Active and Passive Approaches to Patient Management. *J Antimicrob Chemother* 2017;72:3232–3244.
18. Welch HK, Nagel JL, Patel TS, Tandhi TN, Chen B, De Leon J, Chenoweth CE, Washer LL, Rao K, **Eschenauer GA**. Effect of an Antimicrobial Stewardship Intervention on Outcomes for Patients with *Clostridium difficile* Infection. *Am J Infect Control* 2016;44:1539-1543.
19. **Eschenauer GA**, Lam SW, Mueller BA. Dose Timing of Aminoglycosides in Hemodialysis Patients: A Pharmacology View. *Semin Dial* 2016;29:204-13.
20. Nguyen C, Gandhi T, Chenoweth C, Lassiter J, Dela Pena J, **Eschenauer G**, Nagel JL. Impact of an antimicrobial stewardship led initiative to improve adherence with quality performance measures for the management of *Staphylococcus aureus* bacteremia. *J Antimicrob Chemother* 2015;70:3390-3396.
21. Espinel-Ingroff A, Alvarez-Fernandez M, Cantón E, Carver P, Chen S, **Eschenauer G**, Getsinger D, González G, Govender N, Grancini A, Hanson K, Kidd S, Klinker K, Kubin C, Kus J, Lockhart S, Meletiadiis J, Morris A, Pelaez T, Quindós G, Rodriguez-Iglesias M, Sánchez-Reus F, Shoham S, Wengenack N, Borrell N, Echeverria J, Esperalba J, Gómez-G. de la Pedrosa E, García-García I, Linares-Sicilia M, Marco F, Merino P, Pemán J, Pérez del Molino L, Roselló E, Rubio Calvo C, Ruiz-Pérez de Pipaon M, Yague G, Garcia-Effron G, Guinea J, Perlin D, Sanguinetti M, Shields R, Turnidge J. Multi-center study of epidemiological cutoff values and detection of resistance in *Candida* spp. to anidulafungin, caspofungin and micafungin using the Sensititre YeastOne colorimetric method. *Antimicrobial Agents and Chemotherapy* 2015;59:6725- 6732.
22. Shields RK, Nguyen MH, Potoski BA, Press EG, Chen L, Kreiswirth BN, Clarke LG, **Eschenauer GA**, Clancy CJ. Doripenem minimum inhibitory concentrations and ompK36 porin genotypes of ST258, KPC-producing *Klebsiella pneumoniae* may predict responses to carbapenem-colistin combination therapy among patients with bacteremia. *Antimicrob Agents Chemother* 2015;59:1797-1801.
23. **Eschenauer GA**, Kwak EJ, Potoski BA, Clarke LG, Shields RK, Abdel-Massih R, Silveira FP, Vergidis P, Clancy CJ, Nguyen MH. Targeted versus Universal Antifungal Prophylaxis among Liver Transplant Recipients. *Am J Transplant* 2015;15:180-9.
24. **Eschenauer GA**, Nguyen MH, Clancy CJ. Is Fluconazole or an Echinocandin the Agent of Choice for Candidemia. *Ann Pharmacotherapy* 2015;49:1068-1074.

25. Pogue JM, Potoski BA, Postelnick M, Mynatt RP, Trupaino DP, **Eschenauer GA**, Kaye KS. Bringing the "Power" to Cerner's Powerchart for Antimicrobial Stewardship. *Clin Infect Dis* 2014;59:416-424.
26. **Eschenauer GA**, Nguyen MH, Shoham S, Vazquez JA, Morris AJ, Pasculle WA, Kubin CJ, Klinker KP, Carver PL, Hanson KE, Chen S, Lam SW, Potoski BA, Clarke LG, Shields RK, Clancy CJ. Real-world experience with echinocandin MICs against *Candida* species: A multi-center study of hospitals that routinely perform susceptibility testing of bloodstream isolates. *Antimicrob Agents Chemother* 2014;58:1897-906
27. **Eschenauer GA**, Carver PL, Lin SW, Klinker KP, Chen YC, Potoski BA, Shields RK, Clancy CJ, Nguyen MH, Lam SW. Fluconazole versus echinocandin for *Candida glabrata* fungemia: A retrospective cohort study. *J Antimicrob Chemother* 2013;68:922-926.
28. **Eschenauer GA**, Carver PL. The evolving role of antifungal susceptibility testing. *Pharmacotherapy* 2013;33:465-475
29. Shields RK, Clancy CJ, Gillis LM, Kwak EJ, Silveira FP, Abdel-Massih RC, **Eschenauer G**, Potoski BA, Nguyen MH. Epidemiology, Clinical Characteristics and Outcomes of Extensively Drug-Resistant *Acinetobacter baumannii* Infections among Solid Organ Transplant Recipients. *PLoS One* 2012;7:e52349.
30. Nguyen M, **Eschenauer GA**, Bryan M, O'Neil K, Furuya EY, Della-Latta P, Kubin CJ. Carbapenem resistant *Klebsiella pneumoniae* bacteremia: factors correlated with clinical and microbiological outcomes. *Diagn Microbiol Infect Dis* 2010;67:180-184.
31. Kludze-Forson M, **Eschenauer GA**, Kubin CJ, Della-Latta P, Lam SW. The impact of delaying the initiation of appropriate antifungal treatment for *Candida* bloodstream infection. *Med Mycol* 2010;48:436- 439.
32. **Eschenauer GA**, Lam SW, Carver PL. Antifungal prophylaxis in liver transplant recipients. *Liver Transpl* 2009;15:842- 858.
33. Lam SW, **Eschenauer GA**, Carver PL. Evolving role of early antifungals in the intensive care unit. *Crit Care Med* 2009;37:1580- 1593.
34. **Eschenauer G**, Carver PL, DePestel D. A comparison of echinocandin antifungals. *Therapeutics and Clinical Risk Management* 2007;3:71-97.
35. Collins CD, **Eschenauer GA**, Salo S, Newton DW. To test or not to test: A cost-minimization analysis of susceptibility testing in patients with documented *Candida glabrata* fungemias. *J Clin Microbiol* 2007;45:1884-1888.
36. **Eschenauer G**, Fedwa K, Collins C, Alaniz C. Compliance with institutional guidelines on the use of vancomycin in a medical intensive care unit. *Hosp Pharm* 2006;41:749-753.
37. **Eschenauer G**, Sweet BV. Pharmacology and therapeutic uses of theanine. *Am J Health Syst Pharm* 2006;63:26-30.

Book Chapters

38. Carver PL, **Eschenauer GA**. Invasive Fungal Infections. In: DiPiro JT, Yee GC, Posey LM, Haines ST, Nolin TD, Ellingrod V. *Pharmacotherapy: A Pathophysiologic Approach*. 12th ed. USA: McGraw Hill, 2022.
39. Buehrle D, **Eschenauer GA**. Central nervous system infections. In: Zeind CS, Carvalho MG, eds. *Applied therapeutics: the clinical use of drugs*. 12th ed. Philadelphia, USA: Wolters Kluwer, 2022.
40. **Eschenauer GA**, Buehrle D, Potoski BA. Central nervous system infections. In: Zeind CS, Carvalho MG, eds. *Applied therapeutics: the clinical use of drugs*. 11th ed. Philadelphia, USA: Wolters Kluwer, 2017.
41. Mohammad RA, **Eschenauer GA**, Matzke GR. Drug therapy in renal failure. In: Vincent JL, Abraham E, Moore FA, Kochanek PM, Fink MP, eds. *Textbook of Critical Care*. 6th ed. Philadelphia, USA: Elsevier Saunders, 2011: 1294- 1302.
42. **Eschenauer GA**, Potoski BA, Dudas V. Central nervous system infections. In: Allredge BK, Corelli RL, Ernst ME, Guglielmo BJ, Jacobson PA, Kradjan WA, Williams BR, eds. *Applied therapeutics: the clinical use of drugs*. 10th ed. Philadelphia, USA: Lippincott Williams & Wilkins, 2012: 1468-1488.

Letters/Commentaries

43. Swindells S, **Eschenauer GA**, Nason M, Daar ES. Zinc for COVID-19. *Clin Infect Dis* 2023;77:662.
44. **Eschenauer GA**. Antifungal stewardship: Still catching up? Commentary on “Variability in antifungal stewardship strategies among Society for Healthcare Epidemiology of America (SHEA) Research Network facilities”. *Infect Control Hosp Epidemiol* 2020;41:590- 591.
45. **Eschenauer GA**, Nagel JL, Kubin CJ, Lam SW, Patel TS, Potoski BA. Calming the "Perfect Storm" in Methicillin-Resistant *Staphylococcus aureus* Bacteremia: A Call for a More Balanced Discussion. *Clin Infect Dis* 2015;60:670-671.
46. **Eschenauer GA**, Lam SW. Supratherapeutic oseltamivir levels during continuous dialysis: an expected risk. *Intensive Care Med* 2011;37:371.
47. Lam SW, **Eschenauer GA**. Letter to the editor: Identifying patients at risk of chronic kidney disease. *Am Fam Physician* 2007;76:1454.
48. **Eschenauer G**, Regal R, DePestel D. Antibiotic allergy. *N Engl J Med* 2006;354:2293-2294.
49. **Eschenauer G**, Collins CD, Regal RE. Azithromycin-Warfarin interaction: Are we fishing with a red herring? *Pharmacotherapy* 2005;25(4):630–631.

Other Contributions

50. Gandhi TN, Rao K, Arnold MA, **Eschenauer G**, Kao JY, Napolitano LM, Seagull FJ, Somand DM, Tribble A, Valyko AM, Washer LL, Watson Jr ME. Clostridioides difficile Infection in Adults and Children [Internet]. Ann Arbor (MI): Michigan Medicine University of Michigan; 2019 December. Available from <https://pubmed.ncbi.nlm.nih.gov/32510895/>.

Scientific Presentations

1. Pasternak AL, **Eschenauer G**, Rao K. Influence of CYP2C19 activity on risk of *Clostridioides difficile* infection (CDI) when receiving proton pump inhibitor (PPI). ClinPGx 2024, Philadelphia, PA, June 2024.
2. Pasternak AL, **Eschenauer G**, Rao K. Association of CYP2C19 genotype on proton pump inhibitor (PPI) adverse events (AE). American College of Clinical Pharmacy (ACCP) Annual Meeting, Dallas, TX, November 2023.
3. Lee M, Brancaccio A, **Eschenauer G**, Aitken S, Nagel J. Prospective evaluation of stewardship interventions by generalist pharmacists to minimize unnecessary empiric broad-spectrum antimicrobial therapy for community-acquired pneumonia. Making A Difference in Infectious Diseases Annual Meeting, Orlando, Florida, May 2023.
4. Ravikumar R, Arora N, Marshall V, Hanson B, Barhitte L, **Eschenauer G**. A risk stratification approach to address inpatient beta-lactam allergy labels can safely delabel patients, reduce aztreonam use, and prevent beta-lactam desensitizations. American Academy of Allergy Asthma & Immunology Annual Meeting, San Antonio, Texas, February 2023.
5. Kuriakose S, Tseng A, Gibbons S, Marra F, Boyle A, Senneker T, **Eschenauer G**, Boyd S, George J, Scarsi K, Khoo S, Pau A, Marzolini C. Global collaboration to provide drug interaction guidance for nirmatrelvir/ritonavir. 2023 Conference on Retroviruses and Opportunistic Infections, Seattle, Washington, February 2023.
6. Rux C, Aitken S, **Eschenauer G**, Nagel G. Local analysis of recurrent *Clostridioides difficile* infection for targeted fidaxomicin utilization. Making A Difference in Infectious Diseases Annual Meeting, Orlando, Florida, May 2022.
7. Arora N, Kayser E, Park J, Khaleel I, Answine A, Grzyb K, Heidemann L, **Eschenauer G**, Ravikumar R. Beta-lactam Allergies: Demystifying the Delabeling Process. Society of General Internal Medicine Meeting, Orlando, Florida, April 2022.
8. Klatt M, Dillman N, **Eschenauer G**, Gandhi T, Marshall V, Nagel J, Patel T, Petty L, Smith A, Pogue J. Rethinking optimization of empiric gram-negative therapy for pneumonia in intensive care units: We can do better. European Congress of Clinical Microbiology & Infectious Diseases, Virtual, July 2021.
9. Klatt M, Dillman N, **Eschenauer G**, Gandhi T, Marshall V, Nagel J, Patel T, Petty L, Smith A, Pogue J. Comparative in vitro activity of ceftolozane/tazobactam, ceftazidime/avibactam, meropenem/vaborbactam, imipenem/relebactam, and cefiderocol against *P. aeruginosa*, including drug-resistant isolates at an academic medical center. European Congress of Clinical Microbiology & Infectious Diseases, Virtual, July 2021.
10. Leung E, **Eschenauer G**, Kraft MD, Mohammad RA. Development and Assessment of a Virtual Simulation Educational Intervention on Aminoglycosides in Post-Graduate Health-System Pharmacy Residents. ASHP Midyear, Virtual, December 2020.

11. Tran N, **Eschenauer G**, Scappaticci G, Frame D, Miceli MH, Patel T. Infections in Patients Treated with Chimeric Antigen Receptor T-cells (CAR-T) therapy. IDWeek, Virtual, October 2020.
12. Boton N, Ni J, Mack A, **Eschenauer G**, Patel TS, Kao J, Rao K. Evaluation of Persistent Diarrhea and Recurrence Following Fecal Microbiota Transplantation for Recurrent *Clostridioides difficile* Infection. IDWeek, Virtual, October 2020.
13. **Eschenauer G**, Tran T, Gandhi T, Tribble T, Petty L, Nagel J, Brancaccio A, Scappaticci G, Patel T, Dillman N, Regal R, Klein K, Marshall V, Mills J, Washer L, Sweeney J, Zimmerman C, Rao K. C. *Difficile* Diagnostic Stewardship: Impact of an Antimicrobial Stewardship Program Intervention. UMHS Quality Month Celebration, Ann Arbor, Michigan, October 2020.
14. Ravikumar R, Zhou S, **Eschenauer G**, Bozaan D, Spranger E, Bashaw L, Barwig K, Penar S, Enell M, Samuels K, Gandhi T. Implementation and Follow Up of an In-patient Penicillin Allergy Skin Testing Program at One Large University Hospital. American Academy of Allergy Asthma and Immunology Annual Meeting, Philadelphia, Pennsylvania, March 2020.
15. Tran K, Nagel J, Patel T, **Eschenauer G**. Hard-stop approach for diagnostic stewardship of *Clostridioides difficile* testing. Vizient Consortium Pharmacy Network, Las Vegas, Nevada, December 2019.
16. Yousif S, Bolterman V, Young CL, **Eschenauer G**. Characterization of Extended Spectrum Beta-Lactamase (ESBLs) in *Enterobacter* Spp. At Michigan Medicine. ASHP Midyear Meeting, Las Vegas, Nevada, December 2019.
17. Ravikumar R, Gandhi T, Bozaan D, Zhou S, **Eschenauer G**, Samuels K, Barwig K, Bashaw L, Penar S, Enell M, Spranger L. Penicillin Skin Testing in Hospitalized Patients [Exemplar Finalist]. UMHS Quality Month Celebration, Ann Arbor, Michigan, October, 2019.
18. Xhemali X, Patel TS, **Eschenauer G**, Lew A, Kaye KS, Albin O, Nagel J. Evaluation of Clinical Outcomes Following Implementation of Real-Time Stewardship Team Interventions for Multi-Drug Resistant Organisms. IDWeek, Washington, DC, October 2019.
19. Cua JL, Crass RL, Marshall V, Ateya M, Nagel J, **Eschenauer G**, Gandhi TN, Kaye KS, Petty LA, Chenoweth C, Baang J, Lew A, Patel TS. Implementation of an Antimicrobial Stewardship Program-Led, Multifactorial Pneumonia Diagnosis and Treatment Bundle. IDWeek 2019, Washington, DC, October 2019.
20. Kohl MS, Leung GP, Nagel JL, **Eschenauer GA**. Can we get even better? Comparing strategies to decrease the time to initiation of effective antimicrobial therapy in patients with bloodstream infections. ASHP Midyear Meeting, Anaheim, California, December 2018.
21. Van Dorf S, Carver P, **Eschenauer G**. Fluconazole versus Echinocandins for *Candida albicans* Fungemia. Michigan Institute for Clinical & Health Research Summer Program Symposium, Ann Arbor, Michigan, August 2018.
22. Hershberger TE, Kaye KS, Chenoweth CE, Petty LA, Butler S, Clark A, **Eschenauer GA**, Pagani FD, Patel TS. Epidemiology and Clinical Outcomes of Contemporary, Third-Generation Left Ventricular Assist Device (LVAD) Infections. IDWeek 2018, San Francisco, California, October 2018.

23. Cheung E, McKenzie MG, Benitez Colon LL, Kaye KS, Petty L, Martin E, Marini BL, Perissinotti AJ, **Eschenauer G**, Alaniz C, Wallace K, Patel TS. Impact of Standard versus Prolonged Courses of Antibiotics for the Treatment of Uncomplicated Staphylococcus aureus Bacteremia (SAB) in Patients with Hematologic Malignancies. IDWeek 2018, San Francisco, California, October 2018.
24. Patel TS, Petty L, Conlon A, **Eschenauer G**, Nielsen D, Vaughn V, Kaye KS, Malani A, Osterholzer D, Thyagarajan R, Flanders S, Gandhi TN. Evaluation of Broad-Spectrum Antibiotic De-Escalation in Patients with Health-Care Associated Pneumonia (HCAP) and No Microbiological Diagnosis [Oral Presentation]. IDWeek 2018, San Francisco, California, October 2018.
25. Petty L, Conlon A, Vaughn V, Nielsen D, Kaye K, Malani A, Thyagarajan R, Osterholzer D, **Eschenauer G**, Flanders S, Gandhi TN. Patient- and Hospital-Level Factors and Outcomes Associated with Treatment of Asymptomatic Bacteriuria in Hospitalized Patients: A Multi-Hospital Cohort Study. IDWeek 2018, San Francisco, California, October 2018.
26. Hershberger TE, Butler S, Clark A, **Eschenauer G**, Patel T. Frequency, Risk Factors, and Outcomes of Contemporary, Third Generation Left Ventricular Assist Device Infections.” ASHP Midyear Meeting, Orlando, FL. December 2017.
27. Cheung E, McKenzie M, Benitez Colon L, Marini B, Perissinotti A, **Eschenauer G**, Alaniz C, Kaye K, Petty L, Wallace K, Patel T. Impact of Standard versus Prolonged Courses of Antibiotics for the Treatment of Uncomplicated Staphylococcus aureus Bloodstream Infections in Patients with Hematologic Malignancies. ASHP Midyear Meeting, Orlando, Florida, December 2017.
28. Norris M, Yang S, **Eschenauer G**. Characterizing procalcitonin use and algorithm compliance at a large academic medical center. ASHP Midyear Meeting, Orlando, Florida, December 2017.
29. Foolad F, Huang A, Nguyen C, Colyer L, Lim M, Grieger J, Revolinski S, Li J, Mack M, Gandhi T, Wainaina JN, **Eschenauer G**, Patel T, Marshall V, Nagel J. A Multicenter Stewardship Initiative to Decrease Excessive Duration of Antibiotic Therapy for the Treatment of Community-Acquired Pneumonia (CAP) [Oral Presentation]. IDWeek 2017, San Diego, California, October 2017.
30. Boyd AM, Nagel J, **Eschenauer G**, Marshall VD, Gandhi T, Chenoweth C, Petty L, McClung D, Patel TS. A Multi-Faceted Antimicrobial Stewardship Program (ASP) Intervention Using Clinical Pharmacists Reduces Antibiotic Use and Hospital-Acquired Clostridium difficile Infection (HA-CDI). IDWeek 2017, San Diego, California, October 2017.
31. Gandhi T, Vaughn V, Conlon A, Nielsen D, **Eschenauer G**, Hsaiky L, Thyagarajan R, Malani A, Flanders S. Patient-Level Factors Associated with Treatment of Asymptomatic Bacteriuria in Hospitalized Patients [Top Poster Award]. Society for Healthcare Epidemiology of America (SHEA) conference, St. Louis, Missouri, March 2017.
32. Freeman T, **Eschenauer G**, Patel T, Nagel J. Evaluating the Need for Antibiotic Stewardship Services on Evening, Night and Weekend Shifts in a Large Academic Medical Center. ASHP Midyear Meeting, Las Vegas, Nevada, December 2016.

33. Optimizing Therapy for Patients with Bloodstream Infections: A Collaborative Approach Between an Antimicrobial Stewardship Program and Microbiology. UMHS Quality Month Celebration, Ann Arbor, Michigan, October 2016.
34. Theodore D, Singh A, Loo A, **Eschenauer G**, Shields RK, Kubin CJ, Sobieszczyk M. Outcomes Comparing Initial Fluconazole to Micafungin in ICU Patients with Candidemia. IDWeek 2016, New Orleans, Louisiana, October 2016.
35. Singh A, Theodore D, Loo A, Shields RK, **Eschenauer G**, Sobieszczyk M, Kubin CJ. Retrospective Study of Outcomes Comparing Initial Treatment with Fluconazole or Micafungin in Immunosuppressed Patients with Candidemia. IDWeek 2016, New Orleans, Louisiana, October 2016.
36. Foolad F, Huang A, Nguyen C, Mack M, Gandhi T, Colyer L, Lim M, **Eschenauer G**, Patel T, Marshall V, Nagel J. Impact of a Multi-Faceted Stewardship Intervention on Duration of Antibiotic Therapy for the Treatment of Community-Acquired Pneumonia (CAP). IDWeek 2016, New Orleans, Louisiana, October 2016.
37. **Eschenauer G**, Patel TS, Gandhi T, Chenoweth C, Washer L, Chen B, Welch H, DeLeon J, Rao K, Nagel J. Effect of an Antimicrobial Stewardship Intervention on Outcomes for Patients with Severe *Clostridium difficile* Infection. ASM Microbe Meeting, Boston, Massachusetts, June 2016.
38. Wein R, Schloemer R, Nagel J, **Eschenauer G**. Evaluation of Pharmacist Review of Real-Time Positive Blood Cultures as Part of the Pharmacy Practice Model Initiative. ASHP Midyear Meeting, New Orleans, Louisiana, December 2015.
39. Welch H, De Leon J, **Eschenauer G**, Nagel J. Effect of antimicrobial stewardship intervention on patient outcomes in *Clostridium difficile* colitis. ASHP Midyear Meeting, New Orleans, Louisiana, December 2015.
40. **Eschenauer GA**, Kwak EJ, Potoski BA, Clarke LG, Shields RK, Abdel-Massih R, Silveira FP, Vergidis P, Clancy CJ, Nguyen MH. Universal versus Targeted Antifungal Prophylaxis among Adult Liver Transplant Recipients [Slide Presentation]. Interscience Conference on Antimicrobial Agents and Chemotherapy Meeting, Washington, DC, September 2014.
41. Potoski BA, Shields RK, **Eschenauer GA**, Nguyen MH, Clancy CJ. Clinical and Economic Impact of a Formal Intervention Program Targeting Carbapenem-Resistant *Klebsiella pneumoniae* (CRKP) Bacteremia. Interscience Conference on Antimicrobial Agents and Chemotherapy Meeting, Washington, DC, September 2014.
42. Nagel J, Nguyen C, Hunt A, Hur M, Kunapuli A, **Eschenauer G**, Gandhi T. Impact of Antimicrobial Stewardship Program (ASP) Intervention on Outcomes of *Pseudomonas aeruginosa* (PsA) Infection with Reduced Susceptibility to Cefepime (CFM) or Piperacillin-Tazobactam (PTZ). Interscience Conference on Antimicrobial Agents and Chemotherapy Meeting, Washington, DC, September 2014.
43. **Eschenauer GA**, Nguyen MH, Lin S, Klinker KP, Chen Y, Carver PL, Shields RK, Potoski BA, Clancy CJ, Lam SW. Fluconazole versus echinocandin for *Candida glabrata* fungemia. SCCM Meeting, Houston, Texas, February 2012.

44. Zhang K, **Eschenauer GE**, Potoski BA. *Pseudomonas aeruginosa* (PSA) combination antibiogram: incorporating pharmacodynamic breakpoints (PDB) to identify most appropriate empiric regimens. ACCP Meeting, Pittsburgh, Pennsylvania, October 2011.
45. Potoski BA, Klima KA, **Eschenauer GE**, Shields RK, Nguyen MH, Doi Y. *de novo* Emergence of Colistin-Resistant *Acinetobacter baumannii* (CRA) after colistin (COL) exposure. Interscience Conference on Antimicrobial Agents and Chemotherapy Meeting, Chicago, Illinois, September 2011.
46. Shields RK, Nguyen MH, Kwak EJ, Silveira FP, Abdel Massih RC, Potoski BA, **Eschenauer G**, Clancy CJ. Epidemiology, risk factors and outcomes of *Klebsiella pneumoniae* carbapenemase (kpc) infections in solid organ transplant (tx) recipients. Interscience Conference on Antimicrobial Agents and Chemotherapy Meeting, Chicago, Illinois, September 2011.
47. Shields RK, Clancy CJ, Kwak EJ, Silveira FP, Abdel Massih RC, Potoski BA, **Eschenauer G**, Nguyen MH. Treatment with colistin (col) and a carbapenem (crb) improves success rates against extreme and pan- drug resistant *Acinetobacter baumannii* (xdr- and pdr- ab) and limits emergence of col resistance. Interscience Conference on Antimicrobial Agents and Chemotherapy Meeting, Chicago, Illinois, September 2011.
48. Shields RK, Minces L, Kwak EJ, Silveira F, Potoski BA, **Eschenauer GA**, Abu-Elmagd K, Nguyen MH, Clancy C. Bloodstream infections in intestinal transplant recipients are associated with low mortality rates despite the predominance of late-onset infections and the emergence of *Serratia* and other gram-negative bacteria. IDSA Meeting, Vancouver, British Columbia, October 2010.
49. Shields RK, Clancy CJ, Potoski BA, **Eschenauer GA**, Nguyen MH. Candidemia in the 21st century: no changes in mortality despite increased use of an expanded antifungal armamentarium. Interscience Conference on Antimicrobial Agents and Chemotherapy Meeting, Boston, Massachusetts, September 2010.
50. Shields RK, Nguyen MH, Du C, Cheng S, Potoski BA, **Eschenauer GA**, Clancy CJ. Mutations in FKS genes are associated with caspofungin treatment failure in patients with systemic *Candida glabrata* infections. Interscience Conference on Antimicrobial Agents and Chemotherapy Meeting, Boston, Massachusetts, September 2010.
51. Lam SW, Kludze-Forson M, **Eschenauer GA**. Risk factors associated with breakthrough candidemia in patients receiving prophylactic / empiric antifungal therapy [Research Citation Finalist]. Society of Critical Care Meeting, Nashville, Tennessee, February 2009.
52. Maniar S, O'Neil K, Kubin C, **Eschenauer G**. Evaluation of de-escalation of empiric piperacillin-tazobactam therapy. ASHP Midyear Clinical Meeting, Orlando, Florida, December 2008.
53. Lam SW, Kludze-Forson M, Kubin CJ, **Eschenauer GA**. Impact on mortality of delaying the initiation of appropriate antifungal treatment of candida bloodstream infection. Interscience Conference on Antimicrobial Agents and Chemotherapy Meeting, Washington, DC, October 2008.
54. Hu J, Yin MT, Furuya EY, **Eschenauer G**, Hartman B, Hammer SM, Lowy FD, Kubin CJ. Tigecycline outcomes for infections due to multi-drug resistant gram-negative organisms. Interscience Conference on Antimicrobial Agents and Chemotherapy, Chicago, Illinois, September 2007.

55. Collins CD, **Eschenauer GA**, Salo S, Newton DW. Pharmacoeconomic analysis of susceptibility testing in patients with documented candida glabrata fungemias. Interscience Conference on Antimicrobial Agents and Chemotherapy Meeting, San Francisco, California, September 2006.
56. **Eschenauer GA**, Kraft M, DePestel DD, Carver P. Effect of continuous enteral nutrition on the bioavailability of itraconazole oral solution. MAD-ID Meeting, Orlando, Florida, April 2006, Great Lakes Pharmacy Residency Conference, West Lafayette, Indiana, April 2006, and ASHP Midyear Clinical Meeting, Las Vegas, Nevada, December 2005.
57. Guthrie SK, **Eschenauer G**, Kirsch PT. Risks for CHD (coronary heart disease) in newly admitted adult psychiatry inpatients. 9th Annual Meeting of the College of Psychiatric and Neurologic Pharmacists, Baltimore, Maryland, April 2006.
58. Patel A, Foster R, **Eschenauer G**, Khalidi N. The four pillars of change: Dissecting USP Chapter 797. ASHP Midyear Clinical Meeting, Orlando, Florida, December 2004.
59. **Eschenauer GE**, Guthrie S. Assessing risk factors for coronary heart disease in patients admitted to an adult inpatient psychiatry unit. Great Lakes Pharmacy Residency Conference, West Lafayette, Indiana April 2005 and ASHP Midyear Clinical Meeting, Orlando, Florida, December 2004.
60. **Eschenauer GE**, Thomas C. Effects of atypical antipsychotics on serum lipids: A retrospective chart review. 7th Annual Meeting of the College of Psychiatric and Neurologic Pharmacists, Chicago, Illinois, April 2004.
61. **Eschenauer GE**, Thomas C. Effects of atypical antipsychotics on serum lipids: A retrospective chart review. ASHP Midyear Clinical Meeting, New Orleans, Louisiana, December 2003.

Selected Invited Presentations

1. Novel Antifungals in the Pipeline. IDWeek, Washington, DC, October 2022.
2. COVID-19: From Pandemic to Endemic. University of Michigan College of Pharmacy's Tom D. Rowe 71st Annual Pharmacy Lectures. Ann Arbor, Michigan, October 2022.
3. Pharmacists and COVID. University of Michigan Pharmacy Scholars Program, Opening Ceremony Keynote. Ann Arbor, Michigan, May 2022.
4. New Developments in Antifungals. Making A Difference in Infectious Diseases (MAD-ID) Annual Meeting. Orlando, Florida, May 2022.
5. Antifungal Prophylaxis and Treatment in SOT. ACCP IMTR Webinar, Virtual, January 2022.
6. Antimicrobial- Beta-Lactam Allergy Assessment Strategies. Michigan Hospital Medicine Safety Consortium Collaborative-Wide Meeting Breakout Session, Virtual, November 2021.
7. Early Antifungals in the ICU: Untangling the Unnecessarily Complex. Society of Infectious Diseases Pharmacist Annual Meeting, Virtual, November 2020.

8. Pharmacist's Role in HIV Treatment, Management, and Prevention. SNPhA HIV/AIDS Remember the Ribbon Talk, Virtual, October 2020, December 2021, December 2023.
9. Looking Back, Looking Forward: Infectious Diseases. Tom D. Rowe 66th Annual Pharmacy Lectures, Ann Arbor, Michigan, October 2017.
10. Will You Be Compliant with the Antibiotic Stewardship Program Requirements by 2020? Michigan Society of Health-System Pharmacists Annual Meeting, Grand Rapids, Michigan, October 2016.
11. Update on Invasive Candidiasis Treatment in the ICU. Program presentation at ASHP Midyear Clinical Meeting, New Orleans, Louisiana, December 2015.
12. Update on Antibiotics. University of Pittsburgh School of Medicine Update in Internal Medicine 2013: Evidence-Based Approaches to Common Medical Problems. Published in online audio CME journal: *Audio-Digest Internal Medicine*. Pittsburgh, Pennsylvania, October 2013.
13. A discussion of the guidelines for the management of adults with hospital-acquired, ventilator-associated, and healthcare-associated pneumonia. ASHP Midyear Clinical Meeting, Anaheim, California, December 2006.

Grants

1. Impact of CYP2C19 genotype on proton pump inhibitor adverse events. College of Pharmacy Clinical Enhancement Award. PI: Pasternak, A. Co-Investigator (2022- 2023)
2. Multi-center evaluation of outpatient antibiotic utilization for treatment of urinary tract infection. Making a Difference in Infectious Diseases (MAD-ID). PI: Nagel. Co-Investigator (2018- 2020).
3. AUR NHSN module data lift to CDC Project. PI: Nagel, J. Co-Investigator (2017)
4. Community Acquired Pneumonia Duration of Therapy Initiative. Investigator-initiated research grant from Merck, Inc. PI: Nagel, J. \$197,650.00 (2015- 2017)
5. BCBS HMS Project - Quality Consortium Grant, 5% effort, Co-Investigator (2015- 2016)

Teaching

Instructional

University of Michigan College of Pharmacy

2015- 2018	PharmSci 718 Modern Pharmaceutics and Pharmacogenomics Instructor, Pharmacokinetics in the Obese and Critically Ill
2014- 2016	P551/P713 Direct Patient Care Course Coordinator
2015- 2018	P767 Critical Care Instructor, Fungal Infections in the ICU

2014- present P702 Therapeutics Problem Solving
 Instructor, Pharmacokinetics/Pharmacodynamics
 Instructor, HIV/AIDS
 Instructor, Fungal Infections (2018- present)
 Instructor, *Clostridium difficile* Infection (2018- present)

2014- present P730 Pharmacy Student Seminar
 Advisor (2 students per year)

2013- present P565/P575/P585 Pharm.D. Investigations Project
 Advisor

2013 P531 Therapeutics Problem Solving Lab
 Facilitator

2004- 2006 P452 Pharmaceutical Care IV
 Instructor

2014- 2022 P401, P501, P601, P701 Lifelong Learning/Pharmacy Family Mentor

University of Pittsburgh College of Medicine

2011- 2013 MED 5116 Medical Microbiology
 Lecturer, Antibacterial Drugs

2010- 2013 MED 5710 Clinical Pharmacology
 Coordinator and Facilitator, Rational Use of Antimicrobial Agents

University of Pittsburgh College of Pharmacy

2013 Pharm 3067 Clinical Pharmacy Environments
 Instructor

2011- 2012 Pharm 5111 Profession of Pharmacy
 Facilitator

Experiential

University of Michigan College of Pharmacy

2014- present Advanced Pharmacy Practice Experience (APPE) Preceptor
Infectious Diseases

University of Michigan Health System

2014- present Preceptor, Michigan Medicine Pharmacy Residents
Infectious Diseases
Transplant Infectious Diseases
Stewardship Administration
Microbiology

University of Florida College of Pharmacy

2014 Continuous Professional Development, Preceptor, Working Professional Pharm.D. Program, HIV Update for Pharmacists

University of Pittsburgh College of Pharmacy

2009- 2013 Advanced Pharmacy Practice Experience (APPE) Preceptor
Infectious Diseases

University of Pittsburgh Medical Center

2009- 2013 Preceptor, UPMC Pharmacy Residents
Antimicrobial Stewardship Longitudinal (Developed Experience)
Antibiotic Management
Infectious Diseases

New York Presbyterian Hospital/Columbia University Medical Center

2006- 2009 Preceptor, CUMC Pharmacy Residents
Infectious Diseases

St. John's College of Pharmacy and Health Sciences

2006- 2009 Advanced Pharmacy Practice Experience (APPE) Preceptor
Columbia University Medical Center Infectious Diseases

Philadelphia College of Pharmacy

2006- 2009 Advanced Pharmacy Practice Experience (APPE) Preceptor
Columbia University Medical Center Infectious Diseases

Mentoring

Michigan Medicine

Mentor, Residency Program

Joseph Elijah (2021- 2022)

Alina Varabyeva (2019- 2022)

Lauren Flieller (2017- 2018)

Lydia Benitez (2017- 2018)

Nghi Ha (2014- 2015)

University of Michigan College of Pharmacy

MICHR Summer Research Program Mentor

Sydney VanDorf (2018)

P706 Health Systems

Faculty Mentor (2015)

P570 Research

Sara Selman (2015)

SERVICE

National Guideline Panels

2022- present National Comprehensive Cancer Network (NCCN) Cancer in People with HIV and Kaposi Sarcoma Panel

2021- 2024 National Institutes of Health COVID-19 Treatment Guidelines Panel
Society of Infectious Diseases Pharmacists representative

2021- 2024 NIH/Liverpool/Ontario Paxlovid Drug-Drug Interaction Guidance Collaborative

State and National Committees

2016- present Member, Michigan Society of Health-System Pharmacists (MSHP) Antimicrobial Stewardship Task Force Committee

2013- 2022 Society of Infectious Diseases Pharmacists

2017- 2018	Past Chair, Recognition Awards Committee
2016- 2017	Chair, Recognition Awards Committee
2014- 2019	Member, Recognition Awards Committee
2019- 2022	Member, Guidelines Committee
2015- 2016	Member, Fellowship Application Subcommittee
2013- 2014	Member, Elections Committee
2013- 2014	Member, Annual Report Committee

2014- 2015 ACCP Infectious Diseases Practice and Research Network
Member, Awards Committee

Promotion and Tenure Reviewer

2020 University of California Irvine College of Pharmacy

Manuscript Reviewer

American Journal of Health-System Pharmacy, American Journal of Infection Control, American Journal of Transplantation, Annals of Pharmacotherapy, Antimicrobial Agents and Chemotherapy, BMC Anesthesiology, Clinical Infectious Diseases, Critical Care, Diagnostic Microbiology and Infectious Diseases, Expert Review of Anti-Infective Therapy, Infection Control and Hospital Epidemiology, Journal of Antimicrobial Chemotherapy, Journal of Clinical Pharmacy and Therapeutics, Journal of Critical Care, Medical Mycology, Mycoses, New England Journal of Medicine, Open Forum Infectious Diseases, Pharmacotherapy, The Journal of the American Medical Association (JAMA), Transplant Infectious Diseases, Transplant International

Expert Reviewer

Critical Care Self-Assessment Program (CCSAP). Infectious Diseases in the Intensive Care Unit, Fungal Infections. September 15, 2022. American College of Clinical Pharmacy.

Infectious Diseases Self-Assessment Program (IDSAP). Infections in Immunocompromised Patients, Candidiasis/Candidemia. Release Date May 17, 2021. American College of Clinical Pharmacy

Ambulatory Care Self-Assessment Program (ACSAP), Infection Primary Care, Influenza and Viral Pneumonia. 2016 Release. American College of Clinical Pharmacy.

University Service

University of Michigan College of Pharmacy
Member, Admissions (2016- 2022, 2023-)

Member, Executive Committee (2020- 2023)
Member, Clinical Pharmacy Faculty Preceptor of the Year Committee (2024-)
Member, Pharm.D. Investigations (2013- 2017)
Member, Practitioner Relations/CE (2013- 2021)
Ad Hoc Promotion Committee, Member (2018 Assistant Professor Review)
Ad Hoc Promotion Committee, Chair (2018 Assistant Professor Review)

Clinical Service

University of Michigan Hospital

Member, Antibiotic Subcommittee (2013- present)
Member, Antibiotic Stewardship Team (2013- present)
Member, Infection Control Committee (2013- present)
Member, Clostridium difficile Guideline Team (2013- present)
Member, Clostridium difficile Workgroup (2013- present)
Member, Proton Pump Inhibitor Workgroup (2016- 2018)
Member, Medication Expense Tracking and Expense Reduction (METER) Group (2013- present)
Lead, Specific Ebola Treatment task preparedness, Incident Management Group (2013- 2014)
Member, Michigan Hospital Medicine Safety (HMS) Consortium Antimicrobial Stewardship Initiative (2013- present)
Member, Clinical Workflow Group (2014- 2015)

University of Pittsburgh Medical Center (2009- 2013)

Member, Antibiotic Management Program
Member, Infection Control Committee
Member, Clostridium difficile Task Force
Member, Quality Pneumonia and Vaccine Task Force
Member, UPMC eRecord Immunization Committee
Member, System P&T Safety and Quality Subcommittee: Antibiotic Management

New York Presbyterian Hospital

Member, Residency Advisory Committee (2008- 2009)
Antimicrobial Subcommittee (2006- 2009)

Hospital Antimicrobial Use Guides

www.med.umich.edu/asp (Michigan Medicine Antimicrobial Stewardship homepage)

Editor. Guidelines for Antimicrobial Use in Adult Patients, 6th edition (2016). University of Michigan Health System Antimicrobial Stewardship Program.

Editor: Guide to Antimicrobial Chemotherapy, 8th edition (2013). UPMC Presbyterian Antibiotic Management Program.

Editor: Guide to Antimicrobial Chemotherapy, 7th edition (2012). UPMC Presbyterian Antibiotic Management Program.

Interviews/Other Contributions

“Revolutionizing care: Allergy Evaluation Service strives to break barriers for patients with allergy labels“. May 3rd, 2024. Michigan Medicine Headlines ‘The Wrap’ podcast.
<https://www.youtube.com/watch?v=tE4NecFu20w&t=2s>

Baggaley K. [New Entries Represent an ‘Exciting Time’ for Antifungal Rx](#). Pharmacy Practice News. February 2023.

Eschenauer G. The Role of Infectious Diseases Pharmacists in the COVID-19 Pandemic: the Michigan Medicine Experience. *Michigan Pharmacist*, July 2022 issue.

Cook D. [Program Promotes Appropriate Antibiotic Use](#). Pharmacy Learning Network. January 2018.

Eschenauer GA, Carver PL. Evolving role of antifungal susceptibility testing: Has its time come? Society of Infectious Diseases Pharmacists Newsletter. July 2012.

Shah M. Prevention is key in treating pneumonia. Drug Topics. June 18, 2007.

Mohammad R, **Eschenauer G.** U-M Residents Volunteer for the Good of Patients. The MSHP Monitor. November 2004;23(10).

Della Volpe K. Switching antipsychotics may improve lipid levels. College of Psychiatric and Neurologic Pharmacists Newsletter. October 2004. Pages 4,6.

Della Volpe K. Switching antipsychotics may improve lipid levels. Pharmacy Practice News. October 2004. Page 23.